

Atlantic Station Eco-Charrette

Atlanta, GA



Responsible solutions for environmental living

Executive Summary

On May 4 through May 6, 2003 a charrette was held at the offices of Thompson, Ventulett, Stainback, and Associates to determine strategies to reach Atlantic Station's goal of "Blue-Collar Green." The charrette brought together the Atlantic Station team and local and regional green design and construction experts to establish a sound knowledge and resource base from which to explore and implement these strategies. Additionally, the U.S. Green Building Council's LEED™ Rating System was used as a guideline to measure Atlantic Station's efforts to date and the proposed future green efforts. This report is a summary of the strategies, the next steps recommended by the charrette team, and the resources suggested to support this further work. The credits are discussed in the order they appear in the LEED™ Rating System.

During the two-day analysis, it was estimated that 6 to 11 LEED™ credits will be available to each building on the Atlantic Station site simply by merit of locating their project within the scope of this development. The uncertainty is due to work in progress, specific building types, and rulings that are needed from the USGBC. Southface is committed to documenting the inherent credits to begin the LEED™ process for Atlantic Station partners for use towards certifying their specific buildings and tenant build outs. In order to succeed at this endeavor all of the Atlantic Station team will need to participate. The charrette team found approximately 20 additional LEED™ credits they deem reasonably achievable by tenants building on this site.

The charrette team recommended that Atlantic Station present prospective developers with a Green Toolkit containing all the resources, strategies, and information they may need to build to the green standard set by Atlantic Station. The elements of these toolkits were discussed in the charrette and are outlined in the Action items within the body of this report. Included in this toolkit Southface will coordinate and prepare documentation for credits that apply to all construction on site simply by merit of being a part of the greater Atlantic Station project. Such a toolkit is intended to make the green building process easier, and therefore more successful.

About Southface

Southface is an independent non-profit organization that promotes sustainable homes, workplaces, and communities through education, research, advocacy, and technical assistance. Since its inception in 1978, Southface has helped Atlanta become a national leader in the green building community.

Why Green Building?

Buildings have a tremendous impact on the environment. Buildings in the U.S., for example, consume more than 30% of our total energy and 65% of our electricity. Water, wood, and other natural resources are used inefficiently, at a time when they are becoming increasingly scarce. Moreover, traditional construction methods have generated too much waste, much of which is comprised of harmful substances that are sent to landfills; a typical North American commercial construction project generates up to 2.2 pounds of solid waste per square foot of floor space.

Green design practices can substantially reduce these negative impacts, save money on energy and water, decrease maintenance and liability, and increase worker morale, productivity, and comfort. Sustainable design can also be used to harness positive public relations and more effective marketing.

There are many different concepts of green building design due to a broad range of sustainability issues and the novelty of sustainable principles. Definitions range from broad theories that incorporate all aspects of sustainability to narrow definitions that focus on one specific sustainable design feature such as recycled content materials or energy efficiency. The US Green Building Council defines sustainable building as “design and construction that significantly reduces the negative impact of buildings on the environment and occupants.”

Successful sustainable design takes an integrated “systems” approach in which different aspects of design -- such as architecture, HVAC engineering, site planning, and interior design -- are studied in relation to each other. Therefore, early collaboration between those involved is extremely important. For each design, priorities will vary, and the client, architect, designers, and contractors will need to decide what is feasible and desirable. The charrette is a useful opportunity to bring these players to the table and to develop goals and strategies for making a project sustainable.

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Strategies and Recommendations

The advantage of the charrette process is the efficient and thorough way by which all aspects of a project may be discussed concurrently by a group with varied fields of expertise. The Atlantic Station Eco-Charrette brought together members of the Atlantic Station team as well as members of the Atlanta design and construction community. The expertise and resources available at the charrette will continue to be available to Atlantic Station throughout the design/build process.

The goal of this charrette was to determine the exact steps that Atlantic Station could take to achieve the goal of “Blue-Collar Green.” Through the use of the U.S. Green Building Council’s LEED™ rating system as a guide, groups determined strategies of action, resources available, and next steps to be taken in each of five sustainable development categories.

What follows are the findings of the charrette teams and their recommendations for further work.

Sustainable Sites

Much of the site work on the Atlantic Station site has already been completed. As such, the focus of this Site and Water group was to determine what LEED™ credits are already available to all Atlantic Station tenants based solely on the work that Jacoby has already accomplished in addition to determining additional opportunities for water conservation and sustainable site efforts in the future site wide and on the per-building level.

SS Prereq1 Erosion & Sedimentation Control

This credit has already been accomplished on the site work that is currently underway.

Action item: Southface will coordinate and prepare documentation for the site-wide aspects of this credit with participation from Hilburn Hillestad, Suzanne Wold and Peter Bilson.

SS Credit 1 Site Selection

The Atlantic Station site meets all criteria of this credit, and therefore this credit has already been accomplished site-wide.

Action item: Southface will coordinate and prepare documentation for this credit for use site-wide.

SS Credit 2 Urban Redevelopment / Development Density

This credit may have been achieved by the Atlantic Station development as a whole. Due to the scale of the Atlantic Station development, some of the density of its “neighborhood” may depend on development yet to be done within the Atlantic Station site.

Action item: A credit ruling from USGBC will be required to determine eligibility. Southface will coordinate and prepare documentation for this credit for use site-wide.

SS Credit 3 Brownfield Redevelopment

This credit has been achieved by the Atlantic Station development as a whole.

Action item: Southface will coordinate and prepare documentation for this credit for use site-wide.

SS Credit 4.1 Alternative Transportation, Public Transportation Access

This credit has been achieved by the Atlantic Station development as a whole.

Action item: Conduct a Micro Charrette (meeting) on multi modal strategies and incentive measures to realistically achieve EPA project XL requirements. Southface will coordinate the meeting with GEFA and recommended participants. Southface will coordinate and prepare documentation for this credit for use site-wide should the project meet the requirements.

SS Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms

A large number of showers would have to be made accessible to the occupants of the commercial buildings. One possible strategy for achieving this point for some of the projects is to enter into negotiations with the fitness club to provide commuter shower access. Showers are required for about 5% of the population. For the Southtrust building alone, this equals about 30 showers. The showers must be in proximity to bike storage facilities and the buildings that house the relevant populations. Perhaps a commuter usage fee can be enacted for use of the shower facilities in the fitness center.

Action item: Seek agreement with potential fitness club tenants. Southface will monitor LEED campus updates for changes to this credit and speak with Don Fournier, Chair of LEED campus, for clarification. Jacoby and Southface will seek clarification and possible supplement from USGBC for the unique nature of this project.

SS Credit 4.3 Alternative Transportation, Alternative Fuel Vehicles

There are many ways to achieve this credit site-wide. Electric car charging stations are a possibility, though the charrette team concludes that this may not be the most likely strategy for this specific credit. Other possibilities include natural gas or propane buses, enacting a neighborhood or station group (that must serve 3% of total parking), a rubber tire shuttle, and the upcoming hydrogen vehicle technology.

CMAQ, or Congestion, Mitigation and Air Quality, funds are available for funding alternative transportation through the Georgia Environmental Facilities Authority. Solicitations will be available this fall.

Action item: Hold a transportation micro-charrette to discuss site-wide transportation and parking issues to a greater extent and to determine the feasibility of various strategies. Additionally, more research should be done regarding funding available through the CMAQ program.

SS Credit 4.4 Alternative Transportation, Parking Capacity

This credit is also to be discussed in an upcoming transportation micro-charrette. Strategies for achieving this credit include the review and revision of parking contracts for incentives and disincentives.

Action item: Discuss this issue in the transportation micro-charrette

SS Credit 5.1 Reduced Site Disturbance, Protect or Restore Open Space

Achieving this credit requires more research. There was discussion regarding the applicability of the elliptical pond to this credit. The main pond on site was degraded and a new one was constructed on site. The Proctor Creek stream restoration may assist in achieving this credit as Atlantic Station is required to restore a natural habitat.

Action item: Obtain a ruling from the USGBC to determine credit qualifications for Atlantic Station. The charrette team questions the achievability of this credit due to density and brownfield issues.

SS Credit 5.2 Reduced Site Disturbance, Development Footprint

This credit has been achieved site-wide.

Action item: Southface will coordinate and prepare documentation for the site as a whole.

SS Credit 6.1 Storm water Management, Rate and Quantity

The charrette team considers this credit unachievable for the Atlantic Station site without substantial revision of the Atlantic Station infrastructure. Most of the site was impervious. A possibility for achieving this credit is rainwater collection from roofs and parking deck, but this would require substantial storage structures, piping, and pumping.

Action item: To pursue this credit further, Jacoby must research the feasibility of rainwater collection from the parking deck.

SS Credit 6.2 Storm water Management, Treatment

To achieve this credit, consider adding Stormceptors to the drainage inlets (most of which are on the parking structure), which feed the pinnacle pond and BMP bypass area to meet LEED™ criteria. At build-out, the Stormceptors will control a large amount of water. The 82-inch sections of storm water systems will be very difficult to treat or reduce rate. Rate reduction is the most critical issue to address from an ecological standpoint. The Stormceptors are above and beyond the LEED™ requirement. In order to achieve this credit using only the on-site retention ponds, the ponds would have to be retrofitted to satisfy requirements 6.1 and 6.2. Another strategy to be explored is the use of outflows from the pinnacle pond to be added to Tanyard Creek downstream to increase flow consistency but only if very substantial storage is built to convert storm flows into base flows.

Action item: Conduct further research on the feasibility of installing Stormceptors as well as the linkage between the pinnacle pond and Tanyard Creek flows.

SS Credit 7.1 Heat Island Effect, Non-Roof

This credit has been achieved by Atlantic Station as a whole by placing greater than 50% of parking below ground.

Action item: Southface will coordinate and prepare documentation for the parking deck.

SS Credit 7.2 Heat Island Effect, Roof

This credit may be achieved per building. Options for achieving this credit include the use of an Energy Star roof (Hi-Albedo roof), a vegetated roof, or building integrated photovoltaics. The use of an energy star roof would be the most cost effective option.

Action item: Provide case studies, cost benefit data, and supplier information as part of the toolkit to be given to developers.

SS Credit 8 Light Pollution Reduction

Site-wide, this credit is unachievable. The retail guidelines may be readdressed to consider signage and outdoor lighting. Individual buildings have an opportunity to pursue this credit.

Action item: Provide criteria and information for owners to pass to tenants regarding lighting criteria. This credit affects both the atmosphere and natural habitat.

Water Efficiency

Due to Atlantic Station's designation as a brownfield, the project is encountering a unique set of restrictions in this category. The Site and Water team has attempted to work around these restrictions and decipher the best path for Atlantic Station regarding water usage on the landscape as well as in buildings. The recommendations and strategies for implementation follow:

WE Credit 1.1 Water Efficient Landscaping, Reduce by 50%

This credit has been achieved on the deck by use of micro irrigation and best practice moisture sensors. This credit has not been achieved on grade. A possibility for fully achieving this point is using harvested rainwater from the parking deck or raw water from the Chattahoochee River, or city backflush water to irrigate this on-grade landscaping.

Action item: Document the success of credit achievement on the parking deck and to explore possibilities for achieving this credit for the on-grade portion of the site. Discussions with City regarding backflush water and the use of raw river water.

WE Credit 1.2 Water Efficient Landscaping, No Potable Use or No Irrigation

Several strategies were explored by the charrette team to satisfy this credit including the use of backwash water from the Hemphill Atlanta Water Works or using raw Chattahoochee River water for on-deck and on-grade irrigation or work towards dispelling negative brownfield perception.

Action item: Pursue negotiations with the Hemphill Atlanta Water Works to investigate the use of backwash water and discussions must be started with EPD (Georgia Environmental Protection Division) regarding the use of raw Chattahoochee River water.

WE Credit 2 Innovative Wastewater Technologies

The strategy discussed by the charrette team regarding this credit is the construction of a backflush facility in partnership with the City or the use of raw Chattahoochee River water. Discussions with the City (Jack Ravan) have already begun. The potential exists to build a storage facility (a cistern with a piping system) for use in this system.

Action item: Discussions must continue to investigate options for water use on the Atlantic Station site.

WE Credit 3.1 Water Use Reduction, 20% Reduction

This credit is only achievable per building. Strategies to achieve this credit include the installation of aerators and reduced/waterless urinals, pneumatic toilets, and low flow fixtures. The possibility also exists of using rainwater for conveyance.

Action item: Provide information in the toolkit regarding the costs and suppliers of water efficient fixtures to tenants and builders. Jacoby should explore the possibility of procurement strategies that make waterless fixtures preferable to incoming developers.

WE Credit 3.2 Water Use Reduction, 30% Reduction

This credit follows from the previous credit.

Energy & Atmosphere

Atlantic Station has already taken many innovative steps in the arena of energy usage. However, since the majority of energy used is used in buildings, it is important to address the strategies that may be taken in the upcoming construction of buildings of all. The LEED™ rating system addresses both energy consumed as well as the energy on site and renewable generation. The Energy group discussions at the charrette centered on the likelihood of achievement of each LEED™ credit and the strategies by which each credit could be achieved. A sizable effort was made to be realistic in anticipation of which credits are achievable for the project.

EA Prereq 1 Fundamental Building Systems Commissioning

This credit is achievable in each building on site.

Action item: Language for specifying for Fundamental Commissioning should be provided as part of the toolkit to builders and tenants. The charrette team believes that this can be added to the contract with most MEP firms with a minimal additional cost.

EA Prereq 2 Minimum Energy Performance

Each building must individually comply with ASHRAE 90.1 – 1999. This is equivalent to the Georgia Energy Code as of January 2003. Therefore, each building should be on track to meet this prerequisite regardless of pursuing LEED™ certification.

Action item: Each building must demonstrate compliance with the Georgia Energy Code. This will take a concerted commitment from each project team.

EA Prereq 3 CFC Reduction in HVAC&R Equipment

This prerequisite has already been achieved as there will be no CFC based equipment on the Atlantic Station site.

Action item: Documentation must be completed attesting to this fact.

EA Credit 1 Optimize Energy Performance

This credit can achieve between 0 to 10 points based on the amount of energy saved above and beyond base energy code compliance in the performance of each building. The charrette team believes that 2 to 4 points are likely to be achieved in each building. The team discussed many strategies for achieving these points, including:

- High Temperature difference at building air handlers: There is approximately one air handling unit per tenant space. To increase the efficiency of the

chilled water system throughout the site (not just at the plant), it is possible to reduce the pumping horsepower of the system by increasing the difference between the supply and return temperature of the system. This is to be done at the building side of the system by installed higher efficiency coils. This would increase the cost of the air handler by about 10% Ac. In order for this to benefit the tenants, perhaps an agreement can be made with the central chiller plant to offer cheaper cooling to buildings that have higher efficiency coils, as this system element will allow the plant to install smaller pipes and pumps.

Resources for this include a list of suppliers with this capability, with local suppliers highlighted.

- **Energy Star Roofing:** The Energy Code allows for a discount in roof insulation if installing an Energy Star roof. This roof would save energy as well as provide for a Sustainable Sites credit. Preliminary estimates are that a white roof would cost approximately 5% more than a conventional roof. Project managers and construction estimators must be aggressive when requesting prices – green attributes are often over priced due to estimators lack of experience.

Resources for this include case studies to show the costs and benefits of such a roof, a list of suppliers and installers, and Cool Communities

- **Exceed Code R-values:** By specifying a roof with higher insulation, energy will be saved in the building envelope. To achieve this, specify a minimum R-19 continuous rooftop insulation. This is already in some of the specifications of the project. Raising the insulation higher than R-20 would have diminishing returns. The combination of an Energy Star roof and higher roof R-values would save large amounts of energy.
- **Exterior Wall Insulation:** Increase the overall R-value of the wall by including a thermal break. A possibility for this strategy is to use foam board with a thermal break.
- **Glazing Selection:** Persuade builders to have a lower Solar Heat Gain Coefficient (SHGC) by using a combination of the following strategies
 - Tinted windows
 - Double Paned (insulated) glass
 - Low-e glass (reflective film)
 - Brise-soleil / overhangs

Resources: List of suppliers, products, specifications; case studies showing cost savings with better windows; estimations of what percentage of building energy is lost through glazing.

- **Energy Recovery Options, Outside Air:** Supply the minimum outside air required by code. Provide an energy recovery unit for cooling systems. Using an enthalpy wheel will greatly improve performance over code particularly in building types that require additional outside air.

Resources: Vendors; A narrative on all of these strategies regarding the basic premise and their importance; A narrative on the importance of climate control regarding mold.

- **Controls:** Occupancy sensors for lighting can save energy in commercial buildings.

Resources include a list of suppliers and cost – benefit data on energy saved with controls.

Action item: Explore site wide procurement strategies to encourage the use of products that meet these requirements.

EA Credit 2.1 Renewable Energy, 5%

This credit is very difficult to achieve. There has been discussion regarding the construction of an approximately 30 kW photovoltaic array on the 17th Street bridge. This energy may be applied to the generation/consumption of one building onsite.

Action item: The issue must be discussed with the USGBC to determine whether credit from the 17th Street Bridge PV system can be credited towards building energy use.

EA Credit 2.2 Renewable Energy, 10%

This credit follows from Credit 2.1

EA Credit 2.3 Renewable Energy, 20%

This credit follows from Credit 2.1

EA Credit 3 Additional Commissioning

This is an additional cost to each building. However, the sooner the commissioning agent is involved in the process, the more streamlined the process will be, thereby possibly saving on the additional cost.

Action item: Supply builders with specifications for a commissioning agent as well as a list of local commissioning agents that have experience with the Atlantic Station project as well as commissioning agents with LEEDTM experience.

EA Credit 4 Ozone Depletion

The charrette team believes that this is an unlikely credit for Atlantic Station to achieve at this time, as it is the intention of the development to include the use of HCFC based refrigerants.

EA Credit 5 Measurement & Verification

This credit is achievable on a per-building basis. The charrette team believes that with the proper planning, this credit is achievable for a minimal additional cost. This includes the measurement of:

- Lighting
- Motor loads (elevators)
- Variable Frequency Drive Loads (pumps, air handler units. . .)
- Chiller Variable Load Frequency (at the chiller plant)
- Cooling load
- Economizer (at the chiller plant)
- Boiler efficiencies (N/A)
- Process Energy – on a per building basis

Resources for this credit include a list of control systems necessary, a list of test and balance companies, and a case study on the Emory system.

EA Credit 6 Green Power

This credit would be costly but possible to achieve on a per building basis. Georgia Power is in the process of releasing a Green Power Pricing program. Through this program, tenants can sign contracts for green power that would satisfy this program.

Action item: Tenants must be provided with the most up to date information from Georgia Power's green power program and any other relevant green power options at the time of each building construction. Additionally, Jacoby should meet with Georgia Power to determine if there are any opportunities for site-wide bulk purchasing of green power.

Materials & Resources

Unique opportunities arise for Atlantic Station in the field of Materials and Resources as a result of the development's diversity and scale. The Materials & Resources charrette team devised strategies for waste material management as well as building material incorporation and procurement that take advantage of Atlantic Station's unique position. These strategies and ideas follow:

MR Prereq 1 Storage & Collection of Recyclables

This prerequisite is achievable on a per building basis. This can be achieved by Atlantic Station providing the collection capacity for each building, with building operators paying fees to Atlantic Station for the service.

Resources for this include the Department of Community Affairs, the Georgia Recycling Coalition, and P2AD.

MR Credit 1.1 Building Reuse, Maintain 75% of Existing Shell

The charrette team believes that this credit is unachievable for the Atlantic Station development. However, the team would like to encourage the use of design and construction strategies that increase the likelihood of building reuse in the future. Designing for reuse and demolition provides potential for an innovation credit in this pursuit. Encourage design for multiple uses by accommodating for various electrical and plumbing loads and configurations to prevent the necessity of future invasive renovation work and to reduce the impacts of churn.

Possible strategies for this include the use of a raised floor, demountable partitions, and requiring a 40-year design. The strategies are dependant on full floor or multi-floor tenants or offices within a suite.

Action item: Provide educational materials for developers to demonstrate life cycle costs and encourage this path.

MR Credit 1.2 Building Reuse, Maintain 100% of Shell

This Credit follows from Credit 1.1

MR Credit 1.3 Building Reuse, Maintain 100% Shell & 50% Non-Shell

This Credit follows from Credit 1.1

MR Credit 2.1 Construction Waste Management, Divert 50%

This credit is achievable on a per-building basis.

Action item: Provide materials for builders such as:

- *A recycling economics worksheet for use by contractors*
- *A template Waste Management Plan*

- *Tools and resources to track metrics site-wide*
- *A training video for owners and subcontractors (separate videos for separate audiences) for recycling program on-site.*
- *A timeline for current projects and open communication between concurrent projects for coordination of recycling efforts (intranet communication tool a possibility)*
- *A list of resources and contacts for local haulers / recycling facilities.*

Additionally, Atlantic Station could create a partnership with Habitat Re-store and local salvage yards for donation of excess materials.

Resources include P2AD (case study on military C+D recycling in GA), Packer Industries, Building America, Rebuild America, Southface Energy Institute, CMRA, University of Florida, EPA Waste Wise.

MR Credit 2.2 Construction Waste Management, Divert 75%

This credit follows from Credit 2.1

MR Credit 3.1 Resource Reuse, Specify 5%

This credit requires a ruling from the USGBC regarding the applicability of one building using unused materials from the construction of another building.

Documentation must be completed for the material that has already been re-used on site.

Action item: Enter discussions with the USGBC to determine how to apply this credit to the Atlantic Station development as a whole. Additionally, a program must be devised to coordinate the logistics of material storage and exchange.

MR Credit 3.2 Resource Reuse, Specify 10%

This credit follows from Credit 3.1.

MR Credit 4.1 Recycled Content, Specify 5% (p.c. + ½ p.i.)

This credit can be achieved per building. The high percentage numbers include the use of concrete with fly ash (and reclaimed water), the use of recycled steel, stucco with fly ash, and drywall with recycled content. A site wide material in this category is the use of crushed concrete in the construction of roadways.

Additional recycled content materials that may be used per building include:

- Ceramic Tile
- Carpet
- Solid Surface Countertops with recycled content
- Toilet Partitions
- Ceiling tiles
- Rubber finishes
- Site Amenities – benches, tree grates, parking stops, speed bumps, trash cans
- Plastic Lumber

Action item: Price green specs for the above items that are not already instituted, then make selections based on cost.

Available resources include EPA RMAN web site, GreenSpec, Green Guide, P2AD (for a list of local green building material resources), Georgia Tech, and Southface Energy Institute.

There are a few tools and incentives that exist and that could be formed to encourage the achievement of this credit on the Atlantic Station development. These include trainings and materials for building tenants regarding the availability of such materials, reward programs from the Georgia Recycling Coalition and the National Recycling Coalition as well as Governor's Award Program. This credit could also provide for good publicity for tenants.

Action item: Release a specification and price out of materials to demonstrate cost effective material purchasing, develop educational materials, and the create a focus group to determine what tenants will deem acceptable requirements.

MR Credit 4.2 Recycled Content, Specify 10% (p.c. + ½ p.i.)

This credit follows from Credit 4.1

MR Credit 5.1 Local / Regional Materials, 20% Manufactured Locally

This credit is achievable per building. The concrete frame is local manufactured product. The rebar is most likely manipulated within 20 miles of the site, and therefore local. These materials alone provide for most, if not all of the 20% required for this credit. Other local materials that are easy to incorporate include carpet, CMU and manufactured masonry.

Action item: Make the incorporation of these materials easy for contractors, encourage the use of vinyl backed carpet leasing to increase recycling and reuse. Additionally, the charrette team suggests lobbying the State Government for economic incentives for local/regional material use.

MR Credit 5.2 Local / Regional Materials, of 20% in MRc5.1, 50% Harvested Locally

The most logical method for satisfying this credit is to choose materials that meet both credit 5.1 and 5.2, or materials that are both harvested and manufactured locally.

Action item: Provide tenants and builders with a list of such materials, suppliers, and costs.

MR Credit 6 Rapidly Renewable Materials

The charrette team believes that this credit is most likely unachievable in the shells of this project, though it would be beneficial to provide a list of materials making it possible for the credit to be achieved in tenant build-out. Likely materials to be used in achieving this credit include using cotton insulation for the shell construction, then bamboo flooring and panels, hair carpet, linoleum, and many others.

MR Credit 7 Certified Wood

The charrette team does not believe that this credit is achievable in this project. Georgia Pacific does not currently offer FSC certified wood.

Action item: Enter discussions with Georgia Pacific to pursue an applicable certification and using public resources to determine what materials are best to use. Additionally, a list of FSC certified wood products should be supplied to builders. Work with the Certified Forest Products Council to receive the best assistance.

Indoor Environmental Quality

The credits covered in this section of the LEED™ Rating System are meant to protect the health of the building occupants. Strategies used by Atlantic Station to meet these credits will serve as examples to other buildings in the Southeast as they come to deal with the many issues of sick building syndrome and other indoor building issues that have dominated the news of late.

EQ Prereq 1 Minimum IAQ Performance

This prerequisite should be achievable at the per-building level and simply requires complying with the ventilation guidelines outlined by ASHRAE 62-1992.

EQ Prereq 2 Environmental Tobacco Smoke (ETS) Control

This prerequisite is achievable on a per-building level. The charrette team recommends that smoking be prohibited everywhere except restaurants, in which the smoking areas must be isolated from the rest of the HVAC system.

Action item: Require this element of HVAC system design. To additionally exceed the LEED™ requirement, master plan all designated outside smoking areas away from air intakes.

EQ Credit 1 Carbon Dioxide (CO₂) Monitoring

This is an easily achievable, low-cost credit on a per-building basis.

Action item: Connect Carbon Dioxide monitoring into the control system tied to the outside air ventilation. This should be possible in all commercial and public buildings.

EQ Credit 2 Ventilation Effectiveness

This credit may be achievable on a per-building basis and requires a coordination with the Mechanical Engineers of the building. It is crucial to determine realistic occupancy levels to avoid excessive ventilation. This credit makes an incentive for a floor supply system and displacement ventilation system. This is hard to attain using conventional methods. To achieve this, one possible strategy is to integrate a raised floor into the building design early in the process. Benefits of this credit include an elimination of the need for ceiling tile, fewer materials necessary in the building, flexibility for churn, and occupant satisfaction. A whole building of this type has never been built in Atlanta.

Action item: Consult with mechanical engineering on a per-building basis. Coordinate a package deal with manufacturers of raised floors.

EQ Credit 3.1 Construction IAQ Management Plan, During Construction

The charrette team believes that this credit is easily achievable on every building.

Action item: Provide guidelines to builders regarding construction waste management planning.

EQ Credit 3.2 Construction IAQ Management Plan, Before Occupancy

This is schedule driven and possible necessary in specialty areas such as schools and hospitals. It is possible to conduct the flushout floor-by-floor depending on the decision of the USGBC. Often in the South, outside air is entirely too humid, possibly creating additional problems as a result of moisture issues. The best strategy for developers is to complete the IAQ test procedure.

Action item: Meet with the USGBC to clarify when the building flushout can occur and what the possibilities are if the building is not capable of producing 100% outside air. Also develop a list of IAQ test procedure service providers and an RFP for the service.

EQ Credit 4.1 Low-Emitting Materials, Adhesives & Sealants

This credit may be achievable on a per-building level.

Action item: Provide tenants with lists of acceptable products, suppliers, and costs.

EQ Credit 4.2 Low-Emitting Materials, Paints

This credit is easily achievable on a per-building level.

Action item: Provide tenants with lists of acceptable products, suppliers, and costs.

EQ Credit 4.3 Low-Emitting Materials, Carpet

This credit is easily achievable on a per-building level.

Action item: Provide tenants with lists of acceptable products, suppliers, and costs.

EQ Credit 4.4 Low-Emitting Materials, Composite Wood

This credit may be achievable on a per-building level. Dow chemical has a bio fiber board that is a good reliable alternative for case work.

Action item: Provide tenants with lists of acceptable products, suppliers, and costs.

EQ Credit 5 Indoor Chemical & Pollutant Source Control

This credit should be achievable in every commercial building contingent upon the installation of foot grilles, mats, isolated drains for chemical use areas and other

strategies. 171 17th street is including specifications for foot grilles to be installed indoors.

Action item: Methods for pollutant control must be included in specifications for each building. Provide specification language to developers to include in their contracts.

EQ Credit 6.1 Controllability of Systems, Perimeter

The charrette team does not believe that this credit is feasible for the Atlantic Station project.

EQ Credit 6.2 Controllability of Systems, Non-Perimeter

The achievement of this credit requires the use of underfloor air distribution systems. This is most feasible for office buildings. Individual lighting controls are also required.

Action item: Provide information to developers regarding underfloor air distribution costs and benefits as well as suppliers and installers.

EQ Credit 7.1 Thermal Comfort, Comply with ASHRAE 55-1992

This can be achieved for most building types. Fulfillment of this credit calls for mechanical ventilation.

The next step for this credit includes providing specification information to developers regarding how to comply with this set of guidelines.

EQ Credit 7.2 Thermal Comfort, Permanent Monitoring System

This credit may be achieved per- building. In order to investigate the feasibility of this credit, developers must discuss the per-building applicability with the MEP for each specific project.

EQ Credit 8.1 Daylight & Views, Daylight 75% of Spaces

This credit is difficult to achieve. If the decision is to pursue this credit, the focus should be on heavily occupied spaces. The opportunity for this is rare and exists mostly in buildings with a shallow floor plate.

EQ Credit 8.2 Daylight & Views, Views for 90% of Spaces

This credit is difficult to achieve and is program specific. On a per-building basis, this credit may be investigated for feasibility.

Innovation & Design Process

An innovative point is awarded for achievement above and beyond the LEED™ requirements in a certain credit or for achievement in a Green Building category not addressed by LEED™. A maximum of four innovation points is allowed per project. Only one innovation point is allowed per category. What follows is a compilation of the innovative points suggested by the collective charrette team.

ID Credit 1.1 Innovation in Design

ID Credit 1.2 Innovation in Design

ID Credit 1.3 Innovation in Design

ID Credit 1.4 Innovation in Design

ID Credit 2 LEED™ Accredited Professional

- A. Loading Docks (Multiple Groups): Master plan building location, orientation and floor plan to ensure that loading docks are not located near sensitive areas. Additionally, supply electrical outlets at loading docks such that trucks may draw power from the outlet rather than remain running and exhausting harmful fumes into or beside the buildings.
- B. On-Demand Traffic Control (Multiple Groups): Tie traffic sensors to lights to ensure that no vehicle remains idle needlessly.
- C. LED traffic lights (Multiple Groups): Though this technology alone would most likely not warrant one LEED point, it is above the scope of LEED™ and would save on energy site-wide.
- D. Air Quality Alert Days / Smog Alert (Indoor Environmental Quality): Tie ventilation systems to scrubber/ air washer system to remove contaminants from the air on “smog alert” days of particularly bad air quality.
- E. Shared Bicycle Program (Indoor Environmental Quality): Begin and operate a shared bicycle program where participants can make use of community bicycles. Bicycles would have an in-use / free-for-use indicator.
- F. Sitewide ETS (Environmental Tobacco Smoke) Strategy (Indoor Environmental Quality): A master plan for how the entire site of Atlantic Station can address issues of indoor air quality.
- G. Continual Education (Site and Water): The establishment of a comprehensive site-wide education program including Environmental Kiosks, maintenance staff training, special programming, etc.

- H. Water backwash partnership (Site and Water): As described in Water section – a partnership between Atlantic Station and the Hemphill Atlanta Water Works to use back wash water for irrigation purposes.
- I. Transportation Management Plan (Site and Water): Possible points for thorough completion and implementation of the TMP.
- J. Rainwater collection and conveyance facility (Site and Water): Establishing a facility that collects the rainwater from the parking deck en masse, stores the excess, and distributes the water to buildings and/or the landscape for use instead of potable water.
- K. Site-wide procurement (Multiple Groups): Establish a site-wide procurement program similar to a campus system such that purchasing can be done in bulk, thus making many materials more affordable and accessible to all on site.
- L. Site-wide operations manager (Multiple Groups): Operations division with comprehensive site management plan to ensure that water, site, energy, materials plans and initiatives are executed effectively, efficiently, and according to plan.

Conclusion

The process of greening Atlantic Station is one unlike any other process just as the development is unlike any other development. The actions taken by Atlantic Station in the arena of sustainability will be looked at as an example, model, and a resource for future large scale development and brownfield redevelopment throughout the United States. The Green building practices are rapidly spreading throughout the Southeast. At this critical time in the development of Atlanta, as well as the growth of the green building movement, Atlantic Station may very well set the standard for sustainable development.

There are examples of green buildings in Atlanta and around the Southeast. These buildings demonstrate that green does not require the overcoming of insurmountable obstacles. These buildings and the professionals who contributed to their design and construction are available as resources to the Atlantic Station team. There exists the opportunity here to take all that the design and construction community has learned in the Southeast and incorporate the successes into one comprehensive project at Atlantic Station. Not only will Atlantic Station benefit from the experience, proximity, affordability, and availability of local practitioners, but Atlantic Station will also be pivotal in contributing to the design and construction industry of the Southeast.

The charrette brought together the expertise from the Atlanta area to devise practical solutions for this project. The charrette work produced sensible and realistic assessments of the achievable credits and the strategies to succeed. This report contains the next steps and resources recommended by the charrette team to keep Atlantic Station on the path towards sustainability. Continuing the process hinges on the implementation of these recommendations.

Southface will work with Atlantic Station to document the site-wide credits, or the LEED™ credits that any building will receive simply by being part of Atlantic Station. Additionally, Atlantic Station will be able to draw on the many resources available in the city of Atlanta and the Southeast in general to further develop and implement the strategies discussed. Crucial to the success of any of these strategies is the method by which Atlantic Station elects to promote their sustainable development. An issue encountered repeatedly during the charrette, and surely at other times, is that of requiring tenants and builders to comply with certain regulations. Atlantic Station must decide what is required of their tenants and developers as well as what incentives or disincentives to enact such that the development fulfills the original vision.

With the proper mix of encouragement, incentives, and education, Atlantic Station can succeed in truly becoming Blue-Collar Green.